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Zilberberg et al.

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(54) **APPARATUS AND METHOD FOR
 REDUCING EFFECT OF MOBILE
 TELEPHONE RADIATION**

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5,513,383 A	4/1996	Tsao	
5,541,609 A *	7/1996	Stutzman et al.	343/702
5,630,211 A *	5/1997	Nagai	455/90
D389,477 S *	1/1998	Tabankin et al.	D14/138
5,945,954 A	8/1999	Johnson	
5,990,839 A *	11/1999	Schefte et al.	343/702
2002/0077160 A1 *	6/2002	Edwards et al.	455/575

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FOREIGN PATENT DOCUMENTS

DE	295 08 792	11/1996
EP	0 661 825	7/1995
EP	0 871 236	10/1998
WO	WO 97/26713	7/1997
WO	WO 98/45893	10/1998
WO	WO 98/36988	7/1999

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(56) **References Cited**

U.S. PATENT DOCUMENTS

5,486,836 A 1/1996 Kuffner et al.

* cited by examiner

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(57) **ABSTRACT**

A compact mobile telephone apparatus comprising a two
 part fold-over mobile phone wherein one part, the lower
 part, is a hand set containing a keyboard, microphone, and
 earphone, and the other upper part, is a cover for said
 handset pivotally connected thereto, characterized in that
 said cover contains a monopole antenna extendable through
 the cover, at the opposite end of the pivotal connection to the
 handset, to a distance of 8–16 cm. from the earphone when
 the cover is in the unfolded position, raising the locus of
 radiation laterally and vertically above the head, thereby
 significantly reducing radiation to the head and increasing
 antenna efficiency.

28 Claims, 3 Drawing Sheets

